

GenCore version 4.5
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OM nucleic - nucleic search, using sw model

Run on: February 17, 2000, 09:38:05 ; Search time 1154.67 seconds
(without alignments)
-3707.814 Million cell updates/sec

Title: US-08-455-683-1
Perfect score: 1410
Sequence: 1 GGCGACCTTCTGATCCCAA.....AACCCAGATTACAACTGCAG 1410

Scoring table: OLIGO_NUC

Searched: 821193 seqs, -1518192014 residues

Database : GenEmbl.*

Word size : 0

Number of hits that pass the threshold : 1642386

- 1: gb_bal.*
- 2: gb_bal.*
- 3: gb_bal.*
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- 46: gb_bal.*
- 47: gb_bal.*
- 48: gb_bal.*
- 49: gb_bal.*

50: gb_pl3.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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2	1408	99.9	1408	5	A68828	A68828 Sequence 5
3	1208	85.7	1288	12	S81111	S81111 kappa-opioi
4	617	43.8	1186	12	S77868S3	S77872 kappa opioi
5	486	34.5	538	12	MUSMORGDP3	D31665 Mouse MORGD
6	354	25.1	488	12	MUSMORGDP2	D31664 Mouse MORGD
7	354	25.1	1109	12	S77868S2	S77869 kappa opioi
8	273	19.4	423	12	MUSMORGDP1	D31663 Mouse MORGD
9	273	19.4	2074	12	S77868S1	S77868 kappa opioi
10	255	18.1	432	12	MMU16998	U16998 Mus musculu
11	125	8.9	2481	5	E08874	EC8874 cDNA coding
12	125	8.9	2481	12	RATKOR	D16829 Rattus norv
13	125	8.9	1358	12	RATKOR1A	L22001 Rat kappa o
14	125	8.9	2094	12	RATKOR1B	L22536 Rattus norv
15	125	8.9	1273	12	RATKOR2	D16534 Rat mRNA fo
16	116	8.2	4742	12	RNU00442	U00442 Rattus norv
17	86	6.1	658	12	RNKOR2	U17994 Rattus norv
18	65	4.6	1733	12	CPU04092	U04092 Cavia porce
19	60	4.3	4048	12	RNKOR3	U17995 Rattus norv
20	38	2.7	1757	12	RNKOR1	U17993 Rattus norv
21	35	2.5	715	3	AF012105	AF012105 Sus scrof
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30	29	2.1	1699	12	RATSCM	L02915 Rattus norv
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35	25	1.8	2600	5	AR004660	AR004660 Sequence
36	25	1.8	2706	5	AR031258	AR031258 Sequence
37	25	1.8	1452	5	AR048198	AR048198 Sequence
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ALIGNMENTS

RESULT 1
MUSKAPOPRE
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
REFERENCE

MUSKAPOPRE 1410 bp mRNA
Mouse kappa opioid receptor mRNA, complete cds.
L11065
L11065.1 GI:348248
kappa opioid receptor.
Mus musculus
Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 1410)

AUTHORS Yasuda,K., Raynor,K., Kong,H., Breder,C.D., Takeda,J., Reisine,T. and Bell,G.I.
TITLE Cloning and functional comparison of kappa and delta opioid receptors from mouse brain
JOURNAL Proc. Natl. Acad. Sci. U.S.A. 90, 6736-6740 (1993)
MEDLINE 93342064
FEATURES Location/Qualifiers
source 1..1420
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BASE COUNT 322 a 360 c 337 g 391 t
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Best Local Similarity 100.0%; Pred. No. 0;
Matches 1410; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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RESULT 2

A68828
LOCUS A68828 1408 bp DNA PAT 06-MAY-1999
DEFINITION Sequence 5 from Patent WO9802534.
ACCESSION A68828
VERSION A68828.1 GI:4759756
KEYWORDS
SOURCE unidentified.
ORGANISM unidentified.
REFERENCE 1 (bases 1 to 1408)
AUTHORS Kieffer,B.L., Matthes,H.W., Simonin,F.H., Dierich,A. and Lemeur,M.
TITLE TRANSGENIC ANIMAL WHOSE EXPRESSION OF THE OPIATE RECEPTORS IS MODIFIED
JOURNAL Patent: WO 9802534-A 22-JAN-1998;
COMMENT CENTRE NAT RECH SCIENT (FR)
Other publication FR 2750825 19980116.

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Best Local Similarity 100.0%; Pred. No. 0;
Matches 1208; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

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Db 621 AAAGATCAATCAATCTGCAATTTGGCTCCTGGCAATCATCTGTGGTATATCAGCGATAGT 680
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QY 950 TGTCCGCTCCTGTGTGCTCCGAGAGAGGACCGAAATCTCCGCCGATCACCAGCT 1009
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QY 1370 AGAGTTCA 1377
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RESULT 4
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LOCUS kappa opioid receptor [mice, Genomic, 1186 nt, segment 3 of 3].
DEFINITION S77872
VERSION S77872.1 GI:938531
KEYWORDS 3 of 3
SEGMENT Mus sp.
SOURCE Mus sp.
ORGANISM Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (Bases 1 to 1186)
AUTHORS Liu,H.C., Lu,S., Augustin,J.B., Felsheim,R.F., Chen,H.C., Loh,H.H.
and Wei,L.N.
TITLE Cloning and promoter mapping of mouse kappa opioid receptor gene
JOURNAL Biochem. Biophys. Res. Commun. 209 (2), 639-647 (1995)
MEDLINE 95251663
REMARK GenBank staff at the National Library of Medicine created this
entry [NCBI gibbsq 166539] from the original journal article.
This sequence comes from Fig. 2.
FEATURES
Location/Qualifiers
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is in conflict with the conceptual translation;
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ORIGIN
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RESULT 6
MUSMORGDGP2
LOCUS MUSMORGDGP2 488 bp DNA ROD 23-JUN-1999
DEFINITION Mouse MORGD gene for kappa-opioid receptor, exon 2.
ACCESSION D31664
VERSION D31664.1 GI:5433594
KEYWORDS G-protein associated; kappa opioid receptor; opioid drugs and
peptides-binding; transmembrane protein.
SEGMENT 2 of 3
SOURCE Mus musculus DNA, clone_lib:phage lambda fixii.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 488)
AUTHORS Nishi,M., Takeshima,H., Mori,M., Nakagawara,K. and Takeuchi,T.
TITLE Structure and chromosomal mapping of genes for the mouse
kappa-opioid receptor and an opioid receptor homologue (MOR-C)
JOURNAL Biochem. Biophys. Res. Commun. 205 (2), 1353-1357 (1994)
MEDLINE 95100967
REFERENCE 2 (bases 1 to 488)
AUTHORS Takeshima,H.
TITLE Direct Submission
JOURNAL Submitted (28-MAY-1994) to the DDBJ/EMBL/GenBank databases. Hiroshi
Takeshima, Tokyo Institute of Psychiatry, Department of
Neurochemistry; 2-1-8 Kamikitazawa, Setagaya-ku, Tokyo 158, Japan
(Sel:03-3304-5701(ex.312), Fax:03-3329-8035)
COMMENT Submitted (28-May-1994) to DDBJ by:
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Department of Neurochemistry
Tokyo Institute of Psychiatry
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Tokyo 158
Japan
Phone: 03-3304-5701 x312
Fax: 03-3329-8035.
FEATURES
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Location/Qualifiers
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/clone_lib="phage lambda fixii"
89..441
/note="second protein coding sequence (P2)"
/exon
/number=2
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Best Local Similarity 100.0%; Pred. No. 3.2e-194;
Matches 354; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 442 GATACACGAGATGAAGACCGCAACCAACATCTACATATTTAACCTGGCTTTGGCAGATG 501
Db 88 GATACACGAGATGAAGACCGCAACCAACATCTACATATTTAACCTGGCTTTGGCAGATG 147
QY 502 CTTTGGTACTACCACTATGCCCTTTCAGAGTGTCTGCTACTTGAATTCCTTGGCCTT 561
Db 148 CTTTGGTACTACCACTATGCCCTTTCAGAGTGTCTGCTACTTGAATTCCTTGGCCTT 207
QY 562 TTGGAGATGTGCTATGCGAGATGTGCTATTCATATTCATTTGACTACTACACATGTTTACCAGCA 621
Db 208 TTGGAGATGTGCTATGCGAGATGTGCTATTCATTTCCATTGACTACTACACATGTTTACCAGCA 267
QY 622 TATTCACCTTGACCATGATGAGTGTGGACCGCTACATTCGTGTGTGTCACCCCTGTGGAAG 681
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Db 268 TATTCACCTTGACCATGATGAGTGTGGACCGCTACATTCGTGTGTGCCACCCCTGTGAAG 327
QY 582 CTTTGGACTTCCGAAACACCTTTTAAAGCAAGATCAACACATCTGCATTTGGCTCTCTGG 741
Db 328 CTTTGGACTTCCGAAACACCTTTTAAAGCAAGATCAACACATCTGCATTTGGCTCTCTGG 387
QY 742 CATCATCTGTGTATATACGCGATAGTCCTTTGGAGSCACCAAAAGTCAGGGAAG 795
Db 388 CATCATCTGTGTATATACGCGATAGTCCTTTGGAGSCACCAAAAGTCAGGGAAG 441

RESULT 7
S77868S2
LOCUS S77868S2 1109 bp DNA ROD 26-SEP-1995
DEFINITION kappa opioid receptor [mice, Genomic, 1109 nt, segment 2 of 3].
ACCESSION S77869
VERSION S77869.1 GI:998530
KEYWORDS 2 of 3
SEGMENT Mus sp.
SOURCE Mus sp.
ORGANISM Mus sp.
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 1109)
AUTHORS Liu,H.C., Lu,S., Augustin,L.B., Felsheim,R.F., Chen,H.C., Loh,H.H.
and Wei,L.N.
TITLE Cloning and promoter mapping of mouse kappa opioid receptor gene
JOURNAL Biochem. Biophys. Res. Commun. 209 (2), 639-647 (1995)
MEDLINE 95251653
REMARK GenBank staff at the National Library of Medicine created this
entry [NCBI glibsq 166534] from the original journal article.
This sequence comes from Fig. 2.
FEATURES
Source
Location/Qualifiers
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/organism="Mus sp."
/db_xref="taxon:10095"
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Query Match 25.1%; Score 354; DB 12; Length 1109;
Best Local Similarity 100.0%; Pred. No. 3.3e-194;
Matches 354; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 442 GATACACGAGATGAAGACCGCAACCAACATCTACATATTTAACCTGGCTTTGGCAGATG 501
Db 370 GATACACGAGATGAAGACCGCAACCAACATCTACATATTTAACCTGGCTTTGGCAGATG 429
QY 502 CTTTGGTACTACCACTATGCCCTTTCAGAGTGTCTGCTACTTGAATTCCTTGGCCTT 561
Db 430 CTTTGGTACTACCACTATGCCCTTTCAGAGTGTCTGCTACTTGAATTCCTTGGCCTT 489
QY 562 TTGGAGATGTGCTATGCGAGATGTGCTATTCATTTCCATTGACTACTACACATGTTTACCAGCA 621
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QY 622 TATTCACCTTGACCATGATGAGTGTGGACCGCTACATTCGTGTGTGCCACCCCTGTGGAAG 681
Db 550 TATTCACCTTGACCATGATGAGTGTGGACCGCTACATTCGTGTGTGCCACCCCTGTGGAAG 609
QY 582 CTTTGGACTTCCGAAACACCTTTTAAAGCAAGATCAACACATCTGCATTTGGCTCTCTGG 741
Db 610 CTTTGGACTTCCGAAACACCTTTTAAAGCAAGATCAACATCTGCATTTGGCTCTCTGG 669
QY 742 CATCATCTGTGTATATACGCGATAGTCCTTTGGAGSCACCAAAAGTCAGGGAAG 795
Db 670 CATCATCTGTGTATATACGCGATAGTCCTTTGGAGSCACCAAAAGTCAGGGAAG 723

RESULT 8
MUSMORGDGP1
LOCUS MUSMORGDGP1 423 bp DNA ROD 23-JUN-1999
DEFINITION Mouse MORGD gene for kappa-opioid receptor, exon 1.

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GenCore version 4.5
Copyright (c) 1993 - 1998 Compugen Ltd.

OM nucleic - nucleic search, using sw model

Run on: February 17, 2000, 10:11:06 ; Search time 66.73 Seconds
(without alignments)
3749.319 Million cell updates/sec

Title: US-08-455-683-11
Perfect score: 1000
Sequence: 1 AAGAAGCAAATCAGTAATC.....CCAGTATGACTAGTGTGGA 1000

Scoring table: OLIGO_NUC

Searched: 311585 segs, 125096042 residues

Database : N_Geneseq_36:*

Word size : 0

Number of hits that pass the threshold : 623170

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	949	94.9	1000	1	Q75931	Human kappa opioid
2	439	43.9	1142	1	T12550	Human kappa opioid
3	439	43.9	1143	1	T90998	Human kappa opioid
4	439	43.9	1284	1	T90999	Human kappa opioid
5	252	25.2	1275	1	T92601	Human kappa opioid
6	245	24.5	2447	1	Q56702	Partial sequence o
7	32	3.2	1410	1	Q75926	Mouse kappa opioid
8	32	3.2	2481	1	Q86725	Mammalian kappa op
9	32	3.2	1408	1	V49254	Mouse kappa opiate
10	29	2.9	1821	1	Q56700	Sequence of murine
11	29	2.9	2216	1	Q56656	Murine delta opioid
12	29	2.9	2272	1	Q75927	Mouse delta opioid
13	29	2.9	2218	1	V49253	Mouse delta opiate
14	26	2.6	2070	1	Q79199	Rat mu-subtype opi
15	26	2.6	1618	1	Q89222	Rat mu opioid rece
16	26	2.6	1618	1	Q89223	Transcription regu
17	25	2.5	829	1	Q56703	Partial sequence o
18	25	2.5	1610	1	Q89226	Human mu opioid re
19	25	2.5	2150	1	Q93102	Human mu opiate re
20	25	2.5	2162	1	V61985	Human mu-opioid re
21	25	2.5	2162	1	V61984	Human mu-opioid re
22	25	2.5	2162	1	V61986	Human mu-opioid re
23	25	2.5	2162	1	V61987	Human mu-opioid re
24	25	2.5	2162	1	V61988	Human mu-opioid re
25	25	2.5	2162	1	V61989	Human mu-opioid re
26	25	2.5	2162	1	V61990	Human mu-opioid re
27	25	2.5	2162	1	V61991	Human mu-opioid re
28	25	2.5	2162	1	V61992	Human mu-opioid re
29	25	2.5	2162	1	V61993	Human mu-opioid re
30	25	2.5	2162	1	V61994	Human mu-opioid re
31	25	2.5	2162	1	V61995	Human mu-opioid re
32	21	2.1	21	1	T12553	Human kappa opioid
33	20	2.0	1634	1	Q45653	Human somatostatin
34	20	2.0	1265	1	Q45654	Murine somatostati
35	20	2.0	1961	1	Q56705	Partial sequence o
36	20	2.0	1330	1	Q75928	Mouse opioid recep
37	20	2.0	1567	1	Q89233	Rat opioid recepto
38	20	2.0	2600	1	Q90096	Mouse kappa-3 opio
39	20	2.0	2706	1	Q92972	Rat opiorph recept

c	40	20	2.0	20	1	T12552	Human kappa opioid
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	42	20	2.0	1452	1	T89583	Rat orphanin FQ re
	43	20	2.0	1452	1	T90381	Rat methadone-spec
	44	20	2.0	2229	1	V49252	Mouse mu opiate re
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ALIGNMENTS

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ID Q75931 standard; DNA; 1000 BP.
AC Q75931;
DT 18-AUG-1995 (first entry)
DE Human kappa opioid receptor partial cDNA fragment.
KW Mouse; kappa; delta; mu; opioid receptor; brain; primer: PCR; amplify;
KW transmembrane domain; somatostatin; receptor; human; expression vector;
KW truncate; chimeraic; assay; probe; ss.
OS Homo sapiens.
FH Key Location/Qualifiers
FT cds 102..989
FT /*tag= a
FT /product= partial human kappa opioid receptor
PN W09428132-A.
PD 08-DEC-1994.
PF 20-MAY-1994; U05747.
PR 20-MAY-1993; US-066296.
PR 30-JUL-1993; US-100694.
PR 05-NOV-1993; US-147592.
PA (ARCH-) ARCH DEV CORP.
PI Bell GI, Reisine T, Yasuda K;
DR WPI; 95-022804/03.
DR P-PSDB; R67672.
PI Polynucleotides and peptides derived from opioid receptor
PI polypeptides - for use in therapeutic compositions and in
PI screening assays for useful drug substances.
PS Claim 10; Page 236-239; 300pp; English.
CC The partial nucleotide sequence of the novel human kappa opioid receptor
CC gene. The gene was isolated from a human brain hippocampus cDNA library
CC using a probe from the mouse kappa opioid receptor gene (Q75928). The
CC gene is missing the N-terminal sequence. The C-terminal sequence is
CC very similar to the mouse kappa opioid receptor sequence. Of the
CC C-terminal 293 amino acids, 281 residues are identical and 6 residues
CC have conservative substitutions. The gene encoding the human opioid
CC receptor can be placed in a suitable expression vector for production of
CC the protein in a cell. The opioid receptors thus produced are useful for
CC the development of novel assays designed to select or improve substances,
CC capable of interacting with the opioid receptor proteins, for use in
CC diagnosis, drug design and therapeutic applications.
SQ Sequence 1000 BP; 238 A; 253 C; 225 G; 278 T;

Query Match 94.9%; Score 949; DB 1; Length 1000;
Best Local Similarity 99.9%; Pred. No. 0;
Matches 999; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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QY	61	TTGAAATGGAGGGAAATGCTATTGTTCCTTTCTTTTAGATACACAAAGATGAAGACAG	120
Db	61	TTGAAATGGAGGGAAATGCTATTGTTCCTTTCTTTTAGATACACAAAGATGAAGACAG	120
QY	121	CAACCAACAATTACATATTTAAACCTGGCTTTGGCAGATGCTTTAGTTACTACACCATG	180
Db	121	CAACCAACAATTACATATTTAAACCTGGCTTTGGCAGATGCTTTAGTTACTACACCATG	180
QY	181	CTTTTCAGAGATACGGTCTACTTGATGAATTCCTGGCCTTTTGGGGAATGTGCTGTGCAAGA	240
Db	181	CTTTTCAGAGATACGGTCTACTTGATGAATTCCTGGCCTTTTGGGGAATGTGCTGTGCAAGA	240

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QY 241 TAGTAATTCATTGATTACTACAAACATGTTCCACCAGCATCTTCACCTTGACCATGATGA 300
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Db 301 GCGTGGACCGCTACAIIGCGGTGTGCCACCCCGTGAAGGCTTTGGACTTCCGACACCCCT 360
QY 361 TGAAGGCAAGATCATCAATATCTGCATCTGGCIGCTGCTGCTATCTGTTGGCATCTCTG 420
Db 361 TGAAGGCAAGATCATCAATATCTGCATCTGGCIGCTGCTGCTATCTGTTGGCATCTCTG 420
QY 421 CAATAGTCTCTGGAGGCAACCAAGTCAGGGAAGGTGTGCAATGTCATTTGAGTCTGCTTGC 480
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RESULT 2
T12550 standard; cDNA; 1142 BP.
AC T12550;
DE Human kappa opiod receptor cDNA.
KW Human; kappa opiod receptor; psychiatric disorder; cardiovascular;
neurology; diagnosis; ds.
OS Homo sapiens.
FH key Location/Qualifiers
FT cds 1. 1142
FT /*tag= a
FT /product= kappa_opiod_receptor
FT /note= "incomplete termination codon"
PN WC9601898-A1.
PD 25-JAN-1996.
PE 07-JUL-1995; F00912.
PR 11-JUL-1994; FR-008531.
PA (UYST-) CNIV PASTEUR STRASBOURG LOUIS.
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PI Kieffer B, Simonin F;
DR WPI; 95-097628/10.
DR p-PSDB; 388722.
PT New nucleic acid encoding the human Kappa opiod receptor - useful
in diagnosis and therapy, and for isolating receptor ligands and
modulators
PT Claim 3; Page 13-15; 30pp; French.
PS This sequence codes for the human kappa opiod receptor and was
obtained from two overlapping cDNA fragments isolated from a
human placental cDNA library. The fragments were amplified from
the library using PCR primers based on the sequence of human
genomic clones which hybridised with a murine delta receptor cDNA
probe. Nucleotide probes derived from the kappa opiod receptor
coding sequence are useful for diagnosis of neurological, cardio-
vascular and psychiatric disorders associated with opiod
receptors.
SQ Sequence 1142 BP; 236 A; 337 C; 293 G; 286 T;
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Query Match 43.9%; Score 439; DB 1; Length 1142;
Best Local Similarity 99.1%; Pred. No. 1.2e-209;
Matches 789; Conservative 0; Mismatches 7; Indels 0; Gaps 0;
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Db 257 GATACACAAGATGAAGACAGCAACCAACATTTACATATTTAAACCTTGGCAGATG 315
QY 150 CTTTAGTTACTACAACCAATGCCCTTTCAGAGTACGGTCTACTTGTATTAATTCCTGGCCTT 219
Db 317 CTTTAGTTACTACAACCAATGCCCTTTCAGAGTACGGTCTACTTGTATTAATTCCTGGCCTT 376
QY 220 TTGGGGATGTGCTGTGCRAGATAGTAATTTCCATTGATTACTACAAATGTTCCACAGCA 279
Db 377 TTGGGGATGTGCTGTGCRAGATAGTAATTTCCATTGATTACTACAAATGTTCCACAGCA 436
QY 280 TCTTCACCTTGACCATGAGGCGTGGACCGCTACATTGCCGTGTGCCACCCCGTGAAGG 339
Db 437 TCTTCACCTTGACCATGAGGCGTGGACCGCTACATTGCCGTGTGCCACCCCGTGAAGG 496
QY 340 CTTTGGACTTCCGACACCCCTTGAAGGCAAGATCAATATCTGCATCTGGCTGCTGT 399
Db 497 CTTTGGACTTCCGACACCCCTTGAAGGCAAGATCAATATCTGCATCTGGCTGCTGT 556
QY 400 CGTCACTGTGGCATCTCTGCAATAGTCTTGGAGGCAACCAAGTCCAGGAGGAGTGTG 459
Db 557 CGTCACTGTGGCATCTCTGCAATAGTCTTGGAGGCAACCAAGTCCAGGAGGAGTGTG 616
QY 450 ATGTCAATGAGTGTCTGCTTTCAGTTCCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 519
Db 617 ATGTCAATGAGTGTCTGCTTTCAGTTCCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 576
QY 520 TGAAGATCTGCTGCTGCTGCTTTCAGTTCCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 579
Db 677 TGAAGATCTGCTGCTGCTGCTTTCAGTTCCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 736
QY 580 ACACCCCTGATGATCCTGCTGCTCAAGANNNGTCCGGCTCTTCTGCTGCTGCTGCTGCTGCT 539
Db 737 ACACCCCTGATGATCCTGCTGCTCAAGANNNGTCCGGCTCTTCTGCTGCTGCTGCTGCTGCT 796
QY 640 ATNNCAACCTGCGTAGGATCACCAGACTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 699
Db 797 ATNNCAACCTGCGTAGGATCACCAGACTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 856
QY 700 GCTGGACTCCCATTCACATATTCATCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 759
Db 857 GCTGGACTCCCATTCACATATTCATCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 916
QY 760 CAGCTGCTCTCTCCAGCTATTTACTTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 819
Db 917 CAGCTGCTCTCTCCAGCTATTTACTTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 976
QY 820 ATCCCAATCTCTACCGCTTCTTGTGATGAACACTTCAAGCGGCTGCTTCCGGGACTGCTGCT 879
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Db 977 ATCCATTCTCTACGGCTTTCTTGTGTAAGAACTTCAAGCGGTGTTCCGGGACTTCTGCT 1036
QY 880 TTCCACTGAAGATGAG 895
Db 1037 TTCCACTGAAGATGAG 1052

RESULT 3

T90998
ID T90998 standard; cDNA; 1143 BP.
AC T90998;
DT 14-APR-1998 (first entry)
DE Human kappa opioid receptor cDNA.
KW Selective target cell activation; G protein-coupled receptor;
KW RASSL; gene therapy; cell proliferation; kappa opioid receptor;
KW human; transgenic animal; arrhythmia; bone disease; seizure;
KW vascular contraction; disease model; ss.
OS Homo sapiens.
PN W09735478-A1.
PD 02-OCT-1997.
PF 25-MAR-1997; U05334.
PR 26-MAR-1996; US-622348.
PA (REGC) UNIV CALIFORNIA.
PI Conklin BR;
DR WPI; 97-502739/46.
DR P-PSDB; W30297.
PT Selective activation of target cell expressing modified G protein coupled receptor - allows control of cellular proliferation, especially for amplification of transfected cells in gene therapy Example 1; Page 74-76; 117pp; English.
PS This cDNA sequence comprises the coding region for human kappa opioid receptor (KOR, see W30297), a G protein-coupled receptor implicated in neurotransmission. A novel method for selectively activating a target cell (TC) comprises: (i) introducing into the cell a nucleic acid sequence (I) that expresses a G protein-coupled receptor (A) modified to be activated superiorly by a synthetic ligand (RASSL); and (ii) exposing the transfected cell to small synthetic molecules (B) that bind to and activate (A), inducing the G protein coupled cellular response associated with receptor activation. (A) has: (a) decreased binding affinity for a selected natural ligand of the native receptor; (b) binding affinity for (B); and (c) is activated by binding (B) sufficiently to produce the required cellular response. Also new are: (1) transgenic cells including heterologous (I) in the genome; (2) cellular implants comprising a TC transfected with (I); (3) isolated (I); and (4) transgenic non-human animals expressing (A). Activation of (A) results, in vitro or in vivo, in cellular proliferation, or secretion of a cellular product, particularly a heterologous therapeutic protein encoded by a second inserted nucleic acid sequence. Particularly it is used to expand the relatively few cells that are successfully transfected during gene therapy procedures. Other responses that can be regulated are cell migration and contraction, or pigment production. In transgenic animals, expression or stimulation of (A) is designed to develop cardiac arrhythmia, symptoms of bone disease, seizures, vascular contractions, dementia, neurodegeneration etc., for use as models of these diseases (claimed). The transgenic animals are also used for production of improved food products (e.g. increased calcium content in eggshells or altered fat/lean ratios) or to control fertility or induce labour. A RASSL derived from KOR, designated RASSL OR1 (see W30299), was generated by mutation of the KOR cDNA sequence.
SQ Sequence 1143 BP; 237 A; 337 C; 283 G; 286 T;

Query Match: 43.9%; Score 439; DB 1; Length 1143;
Best Local Similarity 99.1%; Pred. No. 1.2e-209;
Matches 789; Conservative 0; Mismatches 7; Indels 0; Gaps 0;

QY 100 GATACACAAAGATGAAGACAGACGACCAACATTTACATATTAACTGGCTTGGCAGATG 159
257 GATACACAAAGATGAAGACAGACGACCAACATTTACATATTAACTGGCTTGGCAGATG 316

QY 160 CTTAGTTACTACAAACCATGCGCTTTTCAGAGTACGGTCTACTGTGATGATTCCTGGCCTT 219
Db 317 CTTAGTTACTACAAACCATGCGCTTTTCAGAGTACGGTCTACTGTGATGATTCCTGGCCTT 376
QY 220 TTGGGGATGCTGTGCAAGATAGTAATTTCCATTGATTACTACAACATGTTTACCAGCA 279
Db 377 TTGGGGATGCTGTGCAAGATAGTAATTTCCATTGATTACTACAACATGTTTACCAGCA 436
QY 280 TCTTCACTTGAACCATGATGAGCGGTGAGCGCTGACCTGATCCCGTGTGCCACCCCGTGAAGG 339
Db 437 TCTTCACTTGAACCATGATGAGCGGTGAGCGCTGACCTGATCCCGTGTGCCACCCCGTGAAGG 496
QY 340 CTTTGGACTTCCGACACCCCTTGAAGGCAAGATCAATCAATATCTGATCTGGCTGCTGT 399
Db 497 CTTTGGACTTCCGACACCCCTTGAAGGCAAGATCAATCAATATCTGATCTGGCTGCTGT 556
QY 400 CGTCATCTGTGGCATCTCTGCAATAGTCTTGGAGGCACCAAGTCAGGGAAGGTGTG 459
Db 557 CGTCATCTGTGGCATCTCTGCAATAGTCTTGGAGGCACCAAGTCAGGGAAGGTGTG 616
QY 460 ATGTCATTGAGTCTGCTTGGAGTCTTCCAGATGATGACTACTCTCTGGTGGACCTCTTCA 519
Db 617 ATGTCATTGAGTCTGCTTGGAGTCTTCCAGATGATGACTACTCTCTGGTGGACCTCTTCA 676
QY 520 TGAAGATCTGGCTCTTTCATCTTGGCTTGGCTGATCCCTGCTCATCATCTGCTGCT 579
Db 677 TGAAGATCTGGCTCTTTCATCTTGGCTTGGCTGATCCCTGCTCATCATCTGCTGCT 736
QY 580 ACACCCGATGATCCTGGCTCTCAAGANNCTCCGGCTCCTTTCTGGTCCCGGAGAGAAAG 639
Db 737 ACACCCGATGATCCTGGCTCTCAAGAGCGCTCCGGCTCCTTTCTGGTCCCGGAGAGAAAG 796
QY 640 ATNNCACTGCTGATGATCACCAGACTGGTCTCTGGTGGTGGTGGTGGTGGTGGTGGTGGT 699
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QY 700 GCTGGACTCCCATTCACATATTCATCTGCTGGTGGAGGCTCTGGGAGGACCTCCACAGCA 759
Db 857 GCTGGACTCCCATTCACATATTCATCTGCTGGTGGAGGCTCTGGGAGGACCTCCACAGCA 916
QY 760 CAGCTGCTCTCCAGCTATTACTCTGCTGATGAGGCTTAGGCTATACCAACAGTAGCCTGA 819
Db 917 CAGCTGCTCTCCAGCTATTACTCTGCTGATGAGGCTTAGGCTATACCAACAGTAGCCTGA 976
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Db 977 ATCCCATCTCTACGCTTCTTGTGATGAGAACTTCAAGCGGCTTTCGGGACTTCTGCT 1035
QY 880 TTCCACTGAAGATGAG 895
Db 1037 TTCCACTGAAGATGAG 1052

RESULT 4

T90999
ID T90999 standard; cDNA; 1284 BP.
AC T90999;
DT 14-APR-1998 (first entry)
DE Human kappa opioid receptor modified cDNA.
KW Selective target cell activation; G protein-coupled receptor;
KW RASSL; gene therapy; cell proliferation; kappa opioid receptor;
KW human; transgenic animal; arrhythmia; bone disease; seizure;
KW vascular contraction; disease model; ss.
OS Chimeric - Homo sapiens.
CH Chimeric - Synthetic.
FH Key Location/Qualifiers
FT sig_peptide 1..90 /*tag= a
FT /product= pro-actin signal sequence
FT mat_peptide 91..1284 /*tag= b
FT /product= FLAG-KOR-HA fusion
PN W09735478-A1.


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ACCESSION D31663
VERSION D31663.1 GI:643593
KEYWORDS G-protein associated; kappa opioid receptor; opioid drugs and
peptide-binding; transmembrane protein.
SEGMENT 1 of 3
SOURCE Mus musculus DNA, clone_lib:phage lambda fixII.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 423)
AUTHORS Nishi,M., Takeshima,H., Mori,M., Nakagawara,K. and Takeuchi,T.
TITLE Structure and chromosomal mapping of genes for the mouse
kappa-opioid receptor and an opioid receptor homologue (MOR-C)
Biochem. Biophys. Res. Commun. 205 (2), 1353-1357 (1994)
JOURNAL 95100967
MEDLINE
REFERENCE 2 (bases 1 to 423)
AUTHORS Takeshima,H.
TITLE Direct Submission
JOURNAL Submitted (28-MAY-1994) to the DDBJ/EMBL/GenBank databases. Hiroshi
Takeshima, Tokyo Institute of Psychiatry, Department of
Neurochemistry; 2-1-8 Kamikitazawa, Setagaya-ku, Tokyo 156, Japan
(Tel:03-3304-5701(ex.312), Fax:03-3329-8035)
Submitted (28-May-1994) to DDBJ by:
Hiroshi Takeshima
Department of Neurochemistry
Tokyo Institute of Psychiatry
2-1-8 Kamikitazawa, Setagaya-ku
Tokyo 156
Japan
Phone: 03-3304-5701 x312
Fax: 03-3329-8035.
Location/Qualifiers
1. .423
/organism="Mus musculus"
/db_xref="taxon:10090"
/clone_lib="phage lambda fixII"
111..367
/note="first protein coding sequence (P1)"
/number=1
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ORIGIN
Chromosome 1 A2-3.
Query Match 19.4%; Score 273; DB 12; Length 423;
Best Local Similarity 100.0%; Pred. No. 3.8e-147;
Matches 273; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 170 AGCTGCAGCGCTCACCATTGGAGTCCCTCCCATTCAGATCTCCGAGGAGATCCAGGCCCTAC 229
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Db 95 AGCTGCAGCGCTCACCATTGGAGTCCCTCCCATTCAGATCTCCGAGGAGATCCAGGCCCTAC 154

QY 230 CTGCTCTCCAGTGGTGGCTTCTCCCAACAGCAGCTCTTGGTCTCCCAACTGGGCAGA 289
|||||
Db 155 CTGCTCTCCAGTGGTGGCTTCTCCCAACAGCAGCTCTTGGTCTCCCAACTGGGCAGA 214

QY 290 ATCCGACAGTAATGGCAGTGTGGCTCAGAGGATCAGCAGCTGGAGTCCGGCCACATCTC 349
|||||
Db 215 ATCCGACAGTAATGGCAGTGTGGCTCAGAGGATCAGCAGCTGGAGTCCGGCCACATCTC 274

QY 350 TCCGGCCATCCCTGTATCATCATCCGCTGTCTACTCTGTGTATTGTGGTGGCTTAGT 409
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Db 275 TCCGGCCATCCCTGTATCATCATCCGCTGTCTACTCTGTGTATTGTGGTGGCTTAGT 334

QY 410 GGGCAATTCCTGGTCATGTTTGTATCATCCG 442
|||||
Db 335 GGGCAATTCCTGGTCATGTTTGTATCATCCG 367

RESULT 9
S77868S1 S77868S1 2074 bp DNA ROD 26-SEP-1995
LOCUS kappa opioid receptor [mice, Genomic, 2074 nt, segment 1 of 3].
DEFINITION S77868S1 S77868S1 2074 bp DNA ROD 26-SEP-1995
ACCESSION S77868
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VERSION S77868.1 GI:998529
KEYWORDS 1 of 3
SEGMENT Mus sp.
SOURCE Mus sp.
ORGANISM Mus sp.
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 2074)
AUTHORS Liu,H.C., Lu,S., Augustin,L.B., Felsheim,R.F., Chen,H.C., Loh,H.H.
and Wei,L.N.
TITLE Cloning and promoter mapping of mouse kappa opioid receptor gene
JOURNAL Biochem. Biophys. Res. Commun. 209 (2), 639-647 (1995)
MEDLINE 95251663
REMARK GenBank staff at the National Library of Medicine created this
entry [NCBI gibsseq 166530] from the original journal article.
This sequence comes from Fig. 2.
FEATURES
Location/Qualifiers
1. .2074
/organism="Mus sp."
/db_xref="taxon:10095"
BASE COUNT 492 a 485 c 564 g 533 t
ORIGIN
Query Match 19.4%; Score 273; DB 12; Length 2074;
Best Local Similarity 100.0%; Pred. No. 4e-147;
Matches 273; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1622 AGCTGCAGCGCTCACCATTGGAGTCCCTCCCATTCAGATCTCCGAGGAGATCCAGGCCCTAC 1681

QY 230 CTGCTCTCCAGTGGTGGCTTCTCCCAACAGCAGCTCTTGGTCTCCCAACTGGGCAGA 289
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Db 1682 CTGCTCTCCAGTGGTGGCTTCTCCCAACAGCAGCTCTTGGTCTCCCAACTGGGCAGA 1741

QY 290 ATCCGACAGTAATGGCAGTGTGGCTCAGAGGATCAGCAGCTGGAGTCCGGCCACATCTC 349
|||||
Db 1742 ATCCGACAGTAATGGCAGTGTGGCTCAGAGGATCAGCAGCTGGAGTCCGGCCACATCTC 1801

QY 350 TCCGGCCATCCCTGTATCATCATCCGCTGTCTACTCTGTGTATTGTGGTGGCTTAGT 409
|||||
Db 1802 TCCGGCCATCCCTGTATCATCATCCGCTGTCTACTCTGTGTATTGTGGTGGCTTAGT 1861

QY 410 GGGCAATTCCTGGTCATGTTTGTATCATCCG 442
|||||
Db 1862 GGGCAATTCCTGGTCATGTTTGTATCATCCG 1894

RESULT 10
MMU16998
LOCUS MMU16998 432 bp DNA ROD 07-DEC-1994
DEFINITION Mus musculus kappa opioid receptor (oprkl) gene, partial cds.
ACCESSION U16998
VERSION U16998.1 GI:595936
KEYWORDS house mouse.
SOURCE Mus musculus
ORGANISM Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 432)
AUTHORS Grandy,D.K.
TITLE Mapping of the human kappa opioid receptor gene to chromosome
8q11.2-q12: no evidence for multiple kappa opioid receptor genes
JOURNAL Unpublished
REFERENCE 2 (bases 1 to 432)
AUTHORS Grandy,D.K.
TITLE Direct Submission
JOURNAL Submitted (07-NOV-1994) David K. Grandy, Vollum Institute, Oregon
Health Sciences, University, 3181 S.W. Sam Jackson Park Road,
Portland, OR 97201, USA
FEATURES Location/Qualifiers
1. .432
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exon
gene
CDS

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/sex="male"
/dev_stage="adult"
14..366
/gene="oprk1"
14..366
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/note="encodes putative transmembrane domains II, III and IV"
/codon_start=2
/evidence="experimental"
/product="kappa opioid receptor"
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/db_xref="GI:595937"
/translation="YTKMKATNIYIFNLTLADALVTITMPFOSAVVLMNSWPEGDVLCKIVISIGYNNMFTSIFTLTMSVDRIYAVCHPVKALDFRTPLKAKIINICIWLLASVGISAIVLGGTKVRE"
BASE COUNT 114 a 92 c 85 g 141 t
ORIGIN

Query Match 18.1%; Score 255; DB 12; Length 432;
Best Local Similarity 99.7%; Pred. No. 1.1e-136;
Matches 305; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 490 CTTGGCAGATGCTTTGGTACTTACTACCACTATGCCCTTCAGAGTGTCTGTCTACTTGATGA 549
Db 61 CTTGGCAGATGCTTTGGTACTTACTACCACTATGCCCTTCAGAGTGTCTGTCTACTTGATGA 120
QY 550 ATTCTTGGCCTTTTGGAGATGTGCTATGCAAGATTGTGCATTTCCATTTGCACTACTACAACA 509
Db 121 ATTCTTGGCCTTTTGGAGATGTGCTATGCAAGATTGTGCATTTCCATTTGCACTACTACAACA 180
QY 610 TGTTTACCAAGCATATTCACCTTGACCATGATGAGTGGACCGCTACATTTGCTGTGTGCC 669
Db 181 TGTTTACCAAGCATATTCACCTTGACCATGATGAGTGGACCGCTACATTTGCTGTGTGCC 240
QY 670 ACCCTGTGAAGCTTTGGACTTCCGAACACCTTTGAAAGCAAGATCATCAACATCTGCA 729
Db 241 ACCCTGTGAAGCTTTGGACTTCCGAACACCTTTGAAAGCAAGATCATCAACATCTGCA 300
QY 730 TTTGGTCTCCGGCATCATCTGTGGTATATCAGCGTAGTCTTGGAGGCCACCAAGTCA 789
Db 301 TTTGGTCTCCGGCATCATCTGTGGTATATCAGCGTAGTCTTGGAGGCCACCAAGTCA 360
QY 790 GGAAG 795
Db 361 GGAAG 366

RESULT 11
E08874
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT

E08874
CDNA coding rat kappa-opioid receptor.
E08874
E08874.1 GI:2176978
JP 1995070191-A/1.
Rattus sp.
Rattus sp.
Eukaryota; Chordata; Vertebrata; Mammalia; Eutheria;
Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
1 (bases 1 to 2481)
Sato, K.
RECEPTOR PROTEIN, ITS PRODUCTION AND USE THEREOF
Patent: JP 1995070191-A 1 14-MAR-1995;
TAKEDA CHEM IND LTD
CS Rattus sp. (rat)
FN JP 1995070191-A/1

PD 14-MAR-1995
PF 30-JUL-1993 JP 1993190261
PR 09-JUL-1993 JP 93P 170591
PI SATO KIMIMICHI
PC C07K14/47,C12N1/21,C12N15/09,C12P21/02//A61K38/00,A61K38/00,
PC (C12N1/21,
PC C12R1:19),(C12P21/02,C12R1:19),C07K99:00;
CC strandedness: Double;
CC topology: Linear;
FH key Location/Qualifiers
FH source 1..2481
FT /organism="Rattus sp."
FT 111..1253
FT /product="rat kappa-opioid receptor".
FEATURES
source
1..2481
/organism="Rattus sp."
/db_xref="taxon:10118"
BASE COUNT 629 a 588 c 544 g 720 t
ORIGIN

Query Match 8.9%; Score 125; DB 5; Length 2481;
Best Local Similarity 98.9%; Pred. No. 4.2e-61;
Matches 275; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 575 TCGAAGATTGTCTATTTCCATTGACIACATCAACATGTTTACCAGCATATTACCTTGACC 635
Db 501 TCGAAGATTGTCTATTTCCATTGACIACATCAACATGTTTACCAGCATATTACCTTGACC 560
QY 635 ATGATGAGTGTGGACCGCTACATTCTGTGTGCCACCCCTGTGAAGCTTTGGACTTCCGA 695
Db 561 ATGATGAGTGTGGACCGCTACATTCTGTGTGCCACCCCTGTGAAGCTTTGGACTTCCGA 620
QY 695 ACACCTTTGAAAGCAAGATCATCAACATCTGCATTTGGTCTCTGGCATCATCTGTGTGT 755
Db 621 ACACCTTTGAAAGCAAGATCATCAACATCTGCATTTGGTCTCTGGCATCATCTGTGTGT 680
QY 755 ATATCAGCGATAGTCTTGGAGGCCACCAAGTCAGGGAGATGTGGATGTCAATGAATGC 815
Db 681 ATATCAGCGATAGTCTTGGAGGCCACCAAGTCAGGGAGATGTGGATGTCAATGAATGC 740
QY 816 TCGTTCAGTTCCTTCATGATGATGAATATTCCTGGTGGGA 853
Db 741 TCGTTCAGTTCCTTCATGATGATGAATATTCCTGGTGGGA 778

RESULT 12
RATKOR
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
REFERENCE
AUTHORS
TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
JOURNAL
MEDLINE

RATKOR
Rattus norvegicus mRNA for kappa opioid receptor, complete cds.
D16829
D16829.1 GI:404115
kappa opioid receptor.
Rattus norvegicus CDNA to mRNA.
Rattus norvegicus
Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
1 (bases 1 to 2481)
Minami, M.
Direct Submission
Submitted (21-JUL-1993) to the DDBJ/EMBL/GenBank databases.
Masabumi Minami, Faculty of Pharmaceutical Sciences, Kyoto
University, Department of Pharmacology; Kyoto, Kyoto 606-01, Japan
(E-mail: f51250@sakura.kudpc.kyoto-u.ac.jp, Tel:075-753-4546,
Fax:075-753-4586)
2 (bases 1 to 2481)
Minami, M., Toya, T., Katao, Y., Maekawa, K., Nakamura, S., Onogi, T.,
Kaneko, S. and Satoh, M.
Cloning and expression of a cDNA for the rat kappa-opioid receptor
FEBS Lett. 329 (3), 291-295 (1993)
93374033

COMMENT

Submitted (21-JUL-1993) to DDBJ by:
Masabumi Minami
Department of Pharmacology
Faculty of Pharmaceutical Sciences
Kyoto University
Kyoto, Kyoto 605-01
Japan
Phone: 075-753-4546
Fax: 075-753-4586.

FEATURES

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1. .2481
Location/Qualifiers
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111. .1253
/codon_start=1
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/protein_id="BAA04109.1"
/db_xref="GI:404116"

CDS

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CHPVKALDFRTPPLKAKIINICIWLLASSVGSIAVLGGTKVREDVDVIECSLQFPDDE
YSWDLFMKICVFEAFVPIVLIIVCYTLMILRLKSVRLLSGSRKDRNLRRITKLV
LVVAVFIICWTPIHIFILVEALGSTSHSTAVLSVYFCIALGYTNSLNPLVLYAFLD
ENFKRCFRDFCFPIKMRMERQSTNRVNTVQDFASMRDVGGMNKPV"

BASE COUNT
ORIGIN

529 a 588 c 544 g 720 t
Query Match 8.9%; Score 125; DB 12; Length 2481;
Best Local Similarity 98.9%; Pred. No. 4.2e-61;
Matches 275; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 576 IGCAAGATTGTCATTTCCATTGACTACTACAAACATGTTTACCAGCATATTTCACCTTGACC 635
|||||
Db 501 TGCAGAAATTCATTTCCATTGACTACTACAAACATGTTTACCAGCATATTTCACCTTGACC 560
QY 636 ATGATGAGTGTGGACCGCTACATTCCTGTGTCGCCACCGCTGTGAAAGCTTTGGACTTCCGA 695
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QY 696 ACACCTTTGAAAGCAAGATCATCAACATCTGCATCTGCTGCTGGCATCATCTGTTGGT 755
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Db 521 ACACCTTTGAAAGCAAGATCATCAACATCTGCATCTGCTGCTGGCATCATCTGTTGGT 680
QY 756 ATATCAGCGATAGTCTCTGGAGGACCAACAAAGTCAGGGAAGATGTCATTTGAATGC 815
|||||
Db 681 ATATCAGCGATAGTCTCTGGAGGACCAACAAAGTCAGGGAAGATGTCATTTGAATGC 740
QY 816 TCCTTGCACTTCTCTGATGATGAATATTCCTGGTGGGA 853
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Db 741 TCCTTGCACTTCTCTGATGATGAATATTCCTGGTGGGA 778

RESULT 13

RATKOR1A
LOCUS
RATKOR1A 1358 bp mRNA ROD 21-OCT-1993
DEFINITION
Rat kappa opioid receptor mRNA, complete cds.
ACCESSION
L22001
VERSION
L22001.1 GI:409236
KEYWORDS
kappa opioid receptor; opioid receptor.
SOURCE
Rattus norvegicus
ORGANISM
Rattus norvegicus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

REFERENCE

1 (bases 1 to 1358)
Chen, Y., Kestek, A., Liu, J. and Yu, L.
Molecular cloning of a rat kappa opioid receptor reveals sequence
similarities to the mu and delta opioid receptors
Biochem. J. 295, 625-628 (1993)

JOURNAL

MEDLINE

FEATURES

Location/Qualifiers
source
1. .1358

/organism="Rattus norvegicus"
/db_xref="taxon:10116"
/tissue_type="whole brain"
71. .1213
/codon_start=1
/evidence=experimental
/product="kappa opioid receptor"
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/translation="MESPIQIFRGEPTCAPSACLLPNSSSWFNPNAESDSNGSVGS
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CHPVKALDFRTPPLKAKIINICIWLLASSVGSIAVLGGTKVREDVDVIECSLQFPDDE
YSWDLFMKICVFEAFVPIVLIIVCYTLMILRLKSVRLLSGSRKDRNLRRITKLV
LVVAVFIICWTPIHIFILVEALGSTSHSTAVLSVYFCIALGYTNSLNPLVLYAFLD
ENFKRCFRDFCFPIKMRMERQSTNRVNTVQDFASMRDVGGMNKPV"

BASE COUNT
ORIGIN

304 a 353 c 320 g 381 t
Query Match 8.9%; Score 125; DB 12; Length 1358;
Best Local Similarity 98.9%; Pred. No. 4.2e-61;
Matches 275; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 576 TGCAGATTGTCATTTCCATTGACTACTACAAACATGTTTACCAGCATATTTCACCTTGACC 635
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Db 461 TGCAGATTGTCATTTCCATTGACTACTACAAACATGTTTACCAGCATATTTCACCTTGACC 520
QY 636 ATGATGAGTGTGGACCGCTACATTCCTGTGTCGCCACCGCTGTGAAAGCTTTGGACTTCCGA 695
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Db 521 ATGATGAGTGTGGACCGCTACATTCCTGTGTCGCCACCGCTGTGAAAGCTTTGGACTTCCGA 580
QY 696 ACACCTTTGAAAGCAAGATCATCAACATCTGCATCTGCTGCTGGCATCATCTGTTGGT 755
|||||
Db 581 ACACCTTTGAAAGCAAGATCATCAACATCTGCATCTGCTGCTGGCATCATCTGTTGGT 540
QY 756 ATATCAGCGATAGTCTCTGGAGGACCAACAAAGTCAGGGAAGATGTCATTTGAATGC 815
|||||
Db 641 ATATCAGCGATAGTCTCTGGAGGACCAACAAAGTCAGGGAAGATGTCATTTGAATGC 700
QY 816 TCCTTGCACTTCTCTGATGATGAATATTCCTGGTGGGA 853
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Db 701 TCCTTGCACTTCTCTGATGATGAATATTCCTGGTGGGA 738

RESULT 14

RATKOR1B

LOCUS
RATKOR1B 2094 bp mRNA ROD 23-NOV-1993
DEFINITION
Rattus norvegicus kappa opioid receptor (KOR-1) mRNA, complete cds.
ACCESSION
L22536
VERSION
L22536.1 GI:425188
KEYWORDS
G-protein coupled receptor; kappa opioid receptor; transmembrane
protein.
SOURCE
Rattus norvegicus (strain Sprague-Dawley) (library: lambda gt10)
adult brain (striatum) cDNA to mRNA.

ORGANISM

Rattus norvegicus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

REFERENCE

1 (bases 1 to 2094)
Li, S., Zhu, J., Chen, C., Chen, Y.-W., de Riel, J.K., Ashby, B. and
Liu-Chen, L.-Y.

Moelcular cloning and expression of a rat k opioid receptor

Biochem. J. 295, 625-633 (1993)

94059009

FEATURES

Location/Qualifiers

1. .2094
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/strain="Sprague-Dawley"
/db_xref="taxon:10116"
/dev_stage="adult"
/tissue_type="brain (striatum)"
/tissue_lib="lambda gt10"
223. .1365

gene

Thu Feb 17 13:27:14 2000

us-08-455-683-1.feb17oligo.rge

us-08-455-683-11.feb17oligo.rng

Thu Feb 17 13:27:17 2000

CC kappa opiate receptor clone, lambda ms1-1, was subcloned into the CMV
CC promoter-based expression vector pCMV-6b. The resultant construct
CC PCMV-ms1-1 was transfected into COS-1 cells for protein production. The
CC gene encoding the opiate receptor can be used to produce complete,
CC truncated or chimeric opiate receptor proteins. The opiate receptors
CC thus produced are useful for the development of novel assays designed to
CC select or improve substances, capable of interacting with the opiate
CC receptor proteins, for use in diagnosis, drug design and therapeutic
CC applications.
CC
SQ Sequence 1410 BP; 322 A; 360 C; 337 G; 391 T;

Query Match 3.2%; Score 32; DB 1; Length 1410;
Best Local Similarity 100.0%; Pred. No. 1.4e-06;
Matches 32; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 132 TACATATTAACTGGCTTTGGCAGATGCTTT 163
|||||
Db 474 TACATATTAACTGGCTTTGGCAGATGCTTT 503

RESULT 8

ID Q86725 standard; cDNA; 2481 BP.
AC Q86725;
DI 01-DEC-1995 (first entry)
DE Mammalian kappa opiate receptor protein cDNA.
KW Mammalian kappa opiate receptor; mouse delta opiate receptor; analgesic;
KW amplification; primer; rat; probe; E.coli; RT-PCR; hypnotic compound; Cs.
OS Rattus rattus.
FH Key
FT cds
FT
FT Location/Qualifiers
|||.1253
/*tag= a
/product= kappa opiate receptor

J07070191-A.
14-MAR-1995.
30-JUL-1993; 190261.
09-JUL-1993; JP-170591.
(TAKE) TAKEDA CHEM IND LTD.
WPI: 95-144857/19.
P-PSDB; R72591.
Kappa opiate receptor protein and cells expressing it - useful
for the screening of compounds for analgesic and hypnotic
properties

PS Claim 2; Page 9-10; 15pp; Japanese.
CC The nucleotide sequence of the novel mammalian kappa opiate receptor
CC cDNA. The gene was isolated by amplifying a fragment from rat brain
CC by reverse transcriptase-PCR (RT-PCR) using primers Q86725-7 derived from
CC the mouse delta-opiate receptor gene. This fragment was cloned into the
CC plasmid pCRII to produce pRII. The plasmid pRII was used to probe a rat
CC brain DNA library in lambda ZAPI-2 to obtain a clone of the rat kappa
CC opiate receptor gene, designated pOPR2. This clone was introduced into
CC E.coli JM109 for production of the receptor protein. The receptor protein
CC is useful for screening of analgesic and hypnotic compounds including
CC peptides and proteins.
CC
SQ Sequence 2481 BP; 629 A; 588 C; 544 G; 720 T;

Query Match 3.2%; Score 32; DB 1; Length 2481;
Best Local Similarity 100.0%; Pred. No. 1.4e-06;
Matches 32; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 132 TACATATTAACTGGCTTTGGCAGATGCTTT 163
|||||
Db 399 TACATATTAACTGGCTTTGGCAGATGCTTT 430

RESULT 9

V49254
ID V49254 standard; DNA; 1408 BP.
AC V49254;
DI 28-OCT-1998 (first entry)
DE Mouse kappa opiate receptor gene.

KW Mouse; kappa opiate receptor; transgenic animal; mammal; identification;
KW exon; nervous tissue; pain; drug addiction; transplant rejection;
KW immunosuppressant; analgesic; morphine; side effect; ds.
OS Mus sp.
FH Key
FT cds
FT Location/Qualifiers
184..1326
/*tag= a
/product= "kappa opiate receptor"

PN W09802534-A2.
PD 22-JAN-1998.
PF 11-JUL-1997; FC1282.
PR 15-JUL-1996; FR-008810.
PA (CNRS) CENT NAT RECH SCI.
PI Dierich A, Kieffer BL, Lemeur M, Matthes HWD, Simonin FH;
DR WPI: 98-110582/10.
DR P-PSDB; W44939.

PT Transgenic animals defective in one type of opiate receptor - used
PT to identify agents for treatment of pain, drug addiction and
PT transplant rejection, lacking side effects of known opiate(s)
PS Disclosure; Fig 13; 58pp; French.
CC This sequence represents the gene encoding the mouse kappa opiate
CC receptor protein. The sequence is used to generate a transgenic
CC non-human mammal for identifying agents for treating disorders
CC associated with opiate receptors. In the mammal, the expression of
CC the gene encoding the opiate receptor is modified, particularly by
CC the deletion of an exon and/or insertion of a marker gene, e.g. the
CC neomycin resistance gene, into the sequence. Especially the expression
CC of the gene is altered in nervous tissue. The agents are potentially
CC useful for treating severe pain (chronic or acute), drug addiction and/or
CC prevention or treatment of transplant rejection (as immunosuppressants).
CC The method may isolate and identify powerful analgesics that lack
CC morphine-like side effects.
CC
SQ Sequence 1408 BP; 322 A; 359 C; 336 G; 391 T;

Query Match 3.2%; Score 32; DB 1; Length 1408;
Best Local Similarity 100.0%; Pred. No. 1.4e-06;
Matches 32; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 132 TACATATTAACTGGCTTTGGCAGATGCTTT 163
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Db 472 TACATATTAACTGGCTTTGGCAGATGCTTT 503

RESULT 10

Q56700
ID Q56700 standard; cDNA; 1821 BP.
AC Q56700;
DI 15-SEP-1994 (first entry)
DE Sequence of murine delta opiate receptor in the DOR-1 cDNA clone.
KW Opioid receptor; morphine; opiate; SS.
OS Mus musculus.
FH Key
FT cds
FT Location/Qualifiers
29..1139
/*tag= a

PN W09404552-A.
PD 03-MAR-1994.
PF 13-AUG-1993; U07665.
PR 13-AUG-1992; US-929200.
PA (REGC) UNIV CALIFORNIA.
PI Edwards RH, Evans CJ, Kaufman D, Keith DE;
DR WPI: 94-083099/10.
DR P-PSDB; R48629.

PT DNA encoding opiate receptors and antibodies against this
PT receptor - used to express and locate these receptors, and screen
PT cpds. for opiate (ant)agonist activity
PS Claim 1; Fig 5; 74pp; English.
CC A cDNA library was constructed using mRNA isolated from the NG109-15
CC cell line. A single clone, named the DOR-1 clone was isolated.
CC Comparisons with known sequences in GenBank showed highest homology
CC between DOR-1 and the G-protein-coupled somatostatin receptor. Other
CC features of the DOR-1 clone AA sequence deduced from the cDNA
CC sequence include 3 consensus glycosylation sites at residues 18 and

```
CC 33 (predicted to be in the extracellular N-terminal domain), and at
CC residue 310 (close to the C-terminus and predicted to be
CC intracellular). Phosphokinase C consensus sites are present within
CC predicted intracellular domains, at residues 242,253, 344 & 352.
CC Seven putative membrane-spanning regions were identified. The DOR-1
CC clone produces a delta receptor with a predicted mol. wt. of 40,558
CC kaltons prior to post-translational modifications.
SQ Sequence 1821 BP; 339 A; 559 C; 541 G; 382 T;

Query Match 2.9%; Score 29; DB 1; Length 1821;
Best Local Similarity 100.0%; Pred. No. 4.4e-05;
Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 291 ACCATGATGAGCGGTGGACCGCTACATTGC 319
   |||||
DB 446 ACCATGATGAGCGGTGGACCGCTACATTGC 474

RESULT 11
Q66656
ID Q66656 standard; cDNA: 2216 BP.
AC Q66656;
DE 19-JAN-1995 (first entry)
DE Murine delta opioid receptor coding sequence.
KW delta opioid; enkephalin; receptor; mouse; murine; analgesic; pain;
KW drug addiction; neurological disorder; psychiatric; disorder;
KW cardiovascular disorder; ds.
OS Mus musculus.
FH Key Location/Qualifiers
FT CDS 59..1174
FT /*tag= a
FT /product= opioid_receptor

FR2697850-A.
13-MAY-1994.
10-NOV-1992; 013526.
10-NOV-1992; FR-013526.
(PYST-) UNIV PASTEUR STRASBOURG LOUIS.
Kieffer B;
WPI; 94-178255/22.
P-PSDB; R66503.
PT New nucleic acid encoding opioid receptor - and related
PT polypeptide, antisense nucleic acid, probes, recombinant cells
PT and ligands, useful in diagnosis and treatment of e.g.
PT neurological disorders
PS Claim 3; Page 16-18; 29pp; French.
CC A cDNA bank constructed from hybridoma NG108-15, was used to
CC transfect COS-1 cells. The cells were tested for ability to bind
CC tritium-labelled Tyr-D-Thr-Gly-Phe-Leu-Thr, in the presence or
CC absence of the opioid antagonist naloxone. Clone K56 was isolated
CC from a positive colony and found to contain a 2216bp insert. This
CC cDNA encodes a delta opioid (enkephalin) receptor with apparent
CC dissociation constant 1.4nM and Bmax 3.9-6.4 pmole/mg protein.
SQ Sequence 2216 BP; 450 A; 647 C; 649 G; 460 T;

Query Match 2.9%; Score 29; DB 1; Length 2216;
Best Local Similarity 100.0%; Pred. No. 4.5e-05;
Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 291 ACCATGATGAGCGGTGGACCGCTACATTGC 319
   |||||
DB 476 ACCATGATGAGCGGTGGACCGCTACATTGC 504

RESULT 12
Q75927
ID Q75927 standard; DNA; 2272 BP.
AC Q75927;
DE 17-AUG-1995 (first entry)
DE Mouse delta opioid receptor mCRD1 cDNA.
KW Mouse; kappa; delta; mu; opioid receptor; brain; primer; PCR; amplify;
KW transmembrane domain; somatostatin; receptor; human; expression vector;
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KW truncate; chimaeric; assay; probe; ss.
OS Mus musculus.
FH Key Location/Qualifiers
FT CDS 12..1130
FT /*tag= a
FT /product= mouse delta opioid receptor

W09428132-A.
08-DEC-1994.
20-MAY-1994; U05747.
20-MAY-1993; U05747.
30-JUL-1993; U05747.
05-NOV-1993; U05747.
(PARCH-) ARCH DEV CORP.
PI Bell GI, Reisine T, Yasuda K;
DR WPI; 95-022804/03.
DR P-PSDB; R67670.
PT Polynucleotides and peptides derived from opioid receptor
PT polypeptides - for use in therapeutic compositions and in
PT screening assays for useful drug substances.
PS Claim 6; Page 215-221; 300pp; English.
CC The nucleotide sequence of the novel mouse delta opioid receptor gene
CC mCRD1. The gene was isolated from a mouse brain cDNA library using a
CC fragment (amplified from the cDNA library with primers Q75929-30) as a
CC probe. The primers are based on the conserved sequences present in the
CC second and third transmembrane domains of somatostatin (SST) receptor
CC subtypes SST1, SST2 and SST3. The 1.3 kb EcoRI-SacI fragment from the
CC mouse delta opioid receptor clone, lambda msl-2, was subcloned into the
CC CMV promoter-based expression vector pCMV-6c. The resultant construct
CC pCMV-msl-2 was transfected into COS-1 cells for protein production. The
CC gene encoding the opioid receptor can be used to produce complete,
CC truncated or chimaeric opioid receptor proteins. The opioid receptors
CC thus produced are useful for the development of novel assays designed to
CC select or improve substances, capable of interacting with the opioid
CC receptor proteins, for use in diagnosis, drug design and therapeutic
CC applications.
SQ Sequence 2272 BP; 485 A; 665 C; 650 G; 472 T;

Query Match 2.9%; Score 29; DB 1; Length 2272;
Best Local Similarity 100.0%; Pred. No. 4.5e-05;
Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 291 ACCATGATGAGCGGTGGACCGCTACATTGC 319
   |||||
DB 429 ACCATGATGAGCGGTGGACCGCTACATTGC 457

RESULT 13
V49253
ID V49253 standard; DNA; 2218 BP.
AC V49253;
DE 28-OCT-1998 (first entry)
DE Mouse delta opiate receptor gene.
KW Mouse; delta opiate receptor; transgenic animal; mammal; identification;
KW exon; nervous tissue; pain; drug addiction; transplant rejection;
KW immunosuppressant; analgesic; morphine; side effect; ds.
OS Mus sp.
FH Key Location/Qualifiers
FT CDS 58..1176
FT /*tag= a
FT /product= delta opiate receptor"

W09802534-A2.
22-JAN-1998.
11-JUL-1997; F01282.
15-JUL-1996; FR-008810.
(CNRS) CENT NAT RECH SCI.
PI Dierich A, Kieffer BL, LeMaur M, Matthes HWD, Simonin FH;
DR WPI; 98-110582/10.
DR P-PSDB; W44938.
PT Transgenic animals defective in one type of opioid receptor - used
PT to identify agents for treatment of pain, drug addiction and
PT transplant rejection, lacking side effects of known opiate(s)
PT Disclosure; Fig 12; 58pp; French.
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CC This sequence represents the gene encoding the mouse delta opiate
 CC receptor protein. The sequence is used to generate a transgenic
 CC non-human mammal for identifying agents for treating disorders
 CC associated with opiate receptors. In the mammal, the expression of
 CC the gene encoding the opiate receptor is modified, particularly by
 CC the deletion of an exon and/or insertion of a marker gene, e.g. the
 CC neomycin resistance gene, into the sequence. Especially the expression
 CC of the gene is altered in nervous tissue. The agents are potentially
 CC useful for treating severe pain (chronic or acute), drug addiction and/or
 CC prevention or treatment of transplant rejection (as immunosuppressants).
 CC The method may isolate and identify powerful analgesics that lack
 CC morphine-like side effects.
 SQ Sequence 2218 BP; 460 A; 648 C; 650 G; 460 T;

Query Match 2.9%; Score 29; DB 1; Length 2218;
 Best Local Similarity 100.0%; Pred. No. 4.5e-05;
 Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 291 ACCATGATGAGCGTGGACCGCTACATTC 319
 Db 475 ACCATGATGAGCGTGGACCGCTACATTC 503

RESULT 14
 Q79199
 ID Q79199 standard; cDNA; 2070 BP.
 AC Q79199;
 DT 19-APR-1995 (first entry)
 DE Rat mu-subtype opiate receptor cDNA.
 KW Mu-subtype opiate receptor; MSOR; drug addiction; ds.
 OS Rattus rattus.
 FH Key Location/Qualifiers
 FT cds 83..1154
 FT /*tag= a
 FT /product= Mu-subtype_opioid_receptor
 PN EP-612845-A.
 PD 31-AUG-1994.
 PF 09-FEB-1994; 101968.
 PR 26-FEB-1993; JS-026140.
 PA (AMCY) AMERICAN CYANAMID CO.
 PI Corbett MJ, Eppler CM, Shieh H, Zysk JR;
 DR WPI; 94-265963/33.
 DR P-PSDB; R65188.
 PT Pure mu-type opiate receptor protein - and nucleic acid coding
 PT for it
 PS Claim 1; Fig 11; 39pp; English.
 CC R65188 is the rat mu-subtype opiate receptor protein purified
 CC from rat brain membranes, with biotinyl-b-endorphin (R56556)
 CC as its ligand. It is encoded by the nucleotide sequence Q79199
 CC which was synthesized using Q71022 and Q71023 as PCR primers.
 CC R65188 is useful for identifying other receptor subtypes, for
 CC screening new opiate ligands, and for studying mechanisms of
 CC opiate action, e.g. drug addiction.
 SQ Sequence 2070 BP; 526 A; 564 C; 423 G; 557 T;

Query Match 2.6%; Score 26; DB 1; Length 2070;
 Best Local Similarity 100.0%; Pred. No. 0.0014;
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 255 GATTACTACAACATGTTCCACCAGCAT 280
 Db 404 GATTACTACAACATGTTCCACCAGCAT 429

RESULT 15
 Q89222
 ID Q89222 standard; cDNA; 1618 BP.
 AC Q89222;
 DT 20-OCT-1995 (first entry)
 DE Rat mu opiate receptor cDNA.
 KW Mu opiate receptor; MOR-1; gene therapy; diagnostic; ss.

OS Rattus sp.
 FH Key Location/Qualifiers
 FT cds 214..141C
 FT /*tag= a
 PN W09507983-A.
 PD 23-MAR-1995.
 PF 13-SEP-1994; J10358.
 PR 13-SEP-1993; JS-120601.
 PA (INDV) UNIV INDIANA FOUND.
 PI Yu L;
 DR WPI; 95-131351/17.
 DR P-PSDB; R71964.
 PT New nucleic acid encoding new human mu opiate receptor - and
 PT related vectors, transformed cells, antibodies etc., useful in
 PT diagnosis, treatment and drug screening.
 PS Disclosure; Page 190-194; 266pp; English.
 CC A 365 bp fragment of the mouse delta opiate receptor was used to
 CC screen a rat brain cDNA library under low stringency conditions.
 CC One positive clone included the sequence given in Q89222, encoding a
 CC mu opiate receptor, MOR-1 (R71964). MOR-1 was stably expressed in
 CC transfected CHO cells.
 SQ Sequence 1618 BP; 390 A; 486 C; 370 G; 372 T;

Query Match 2.5%; Score 26; DB 1; Length 1618;
 Best Local Similarity 100.0%; Pred. No. 0.0014;
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 255 GATTACTACAACATGTTCCACCAGCAT 280
 Db 652 GATTACTACAACATGTTCCACCAGCAT 677

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Thu Feb 17 13:27:17 2000

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